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动脉介入溶栓术治疗急性脑梗死的临床疗效*

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摘要 目的:探究动脉介入溶栓术对急性脑梗死患者的临床疗效。**方法:**选择我院收治的急性脑梗死患者 43 例并随机划分成实验组以及对照组。对照组 19 例予静脉内尿激酶溶栓,实验组 24 例予尿激酶动脉内溶栓。比较两组临床疗效、治疗前后血清脑钠肽及 Hcy 水平的变化。**结果:**实验组总有效率显著高于对照组,差异具有统计学意义($P<0.05$)。治疗后,两组患者血清脑钠肽、同型半胱氨酸(Hcy)水平及 NIHSS 评分均较治疗前降低,且与对照组比较,实验组血管总再通率较高、NIHSS 评分、血清脑钠肽及 Hcy 水平较低,差异具备有统计学意义($P<0.05$)。**结论:**动脉介入溶栓术治疗急性脑梗死患者能够有效提高血管再通率、NIHSS 评分及临床疗效,推测其与降低患者血清脑钠肽及 Hcy 水平相关联。

关键词:急性脑梗死;动脉介入溶栓治疗;脑钠肽;同型半胱氨酸

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Effects of Arterial Interventional Thrombolysis on the Patients with Acute Cerebral Infarction*

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ABSTRACT Objective: To investigate the effects of arterial interventional thrombolysis on the patients with acute cerebral infarction. **Methods:** 43 patients with acute cerebral infarction who were treated in our hospital were selected and randomly divided into the experimental group and control group. 19 cases in the control group were treated by intravenous thrombolysis with urokinase, 24 cases in the experimental group were treated by intra arterial thrombolysis with urokinase. The clinical efficacy, serum brain natriuretic peptide and Hcy levels before and after treatment were compared between the two groups. **Results:** The total effective rate of experimental group was higher than that of the control group($P<0.05$); the serum brain natriuretic peptide, homocysteine (Hcy) level and the NIHSS score of both groups were decreased after treatment; compared with the control group, the total vascular patency rate of experimental group was higher, the NIHSS score, serum brain natriuretic peptide and Hcy levels were lower ($P<0.05$). **Conclusion:** Arterial interventional thrombolysis could effectively improve the vascular patency rate, NIHSS score and clinical efficacy in the treatment of patients with acute cerebral infarction, which might be related to reduce the serum brain natriuretic peptide and Hcy levels.

Key words: Acute cerebral infarction; Arterial interventional thrombolysis; Brain natriuretic peptide; Hcy

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前言

急性脑梗死是由于脑内血流动力学的改变使区域性血容量降低,局部组织缺血坏死,造成局部位置神经细胞及脑组织损伤^[1],多数发病较急,致残率及致死率较高,约 60%患者会出现后遗症,严重影响患者的生活质量^[2]。脑梗死治疗的主要目的是使闭塞血管尽早再通,尽快恢复血供及相应的神经功能^[3]。临床上常采用静脉溶栓及动脉溶栓进行治疗^[4]。动脉介入溶栓术是指应用 Seldinger 技术借助 DSA 图像技术对脑内梗死部位进行较为准确且明确的动脉内溶栓^[5]。本实验采用尿激酶裂解

血栓表层的纤维蛋白来达到溶栓的目的,探究动脉介入溶栓术对急性脑梗死的临床疗效及其可能机制。

1 资料与方法

1.1 临床资料

选取我院收治的急性脑梗死患者 43 例,随机划分为实验组与对照组。对照组 19 例,其中有男性 12 例,女性 7 例,年龄在 37~71 岁,平均(57.2 ± 6.5)岁;实验组 24 例,男性 15 例,女性 9 例,年龄位于 38~69 岁,平均(61.5 ± 6.7)岁。两组患者的性别、年龄以及发病原因、病症程度等个人情况经对比差异不具有统

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计学意义($P>0.05$),具有可比性。本研究已经被我院伦理委员会所批准,患者及其家属同意并已签署知情同意书。所有患者入院距发病时间少于 5 小时,具有局灶损害症状及体征,脑功能损害体征出现超过 1 个小时,较为严重的程度,出现肢体瘫痪;没有早期大面积梗死的影像学表现;所测美国国立卫生研究院卒中量表(NHSS)评分为 5~26 分;30~80 岁间。排除有颅内出血史;严重心脏和肝肾功能不全患者;于近 3 月内出现过颅脑外伤史或其他系统出血史及心肌梗死史;仍存在活动性出血或严重创伤;妊娠妇女;接受过动脉穿刺术未达到良好愈合者;正在口服抗凝药物如肝素等治疗;血小板计数大幅下降 $<100\times 10^9/L$;高血压;已知有出血倾向或血液病史患者;发病时间已超过 6 小时;3 个月内出现过颅内手术史患者。

1.2 治疗方法

两组患者进行实时监护及心电监护,实时监测患者生命体征并维持稳定,保证患者的正常通气必要时予机械通气。在治疗后的 24 h 内评估患者神经功能,第一个小时每隔 30 min 进行一次,以后间隔一小时进行一次。使患者静脉通道开放,多次监测血压避免高血压或低血压的发生。当患者严重呕吐甚至头痛等症时,立即停止溶栓,即刻行脑 CT 进行检查。对照组予注射用尿激酶(吉林省辉南长龙生化药业股份有限公司,国药准字 H22023050)1 万 IU,将 100 万 IU 尿激酶注入 150 mL 生理盐水中,于 30 分钟内静脉滴注;实验组经右侧股动脉做 Seldinger 法穿刺,按照全脑数字减影血管造影(DSA)对相应阻塞血管选择性接近并将微导管置于开口处。当没有发现阻塞血管时,在其相应的供血动脉处,予尿激酶(吉林省辉南长龙生化药业股份有限公司,国药准字 H22023050)50U,混合入 60 mL 的生理盐水,40 分钟内静脉滴注,同时间隔 10 分钟进行观察是否再通,观察到血管再通后即可停止治疗。溶栓 24 h 后,若患者无明显的并发症出现行 MRI 检查头颅部,无脑出血的患者服用阿司匹林肠溶片(黑龙江乌苏里江制药有限公司哈尔滨分公司,国药准字 H20044881)300 mg,口服,每日一次,连续治疗 10 天,改为 100 mg 长期口服。在两组患者行药物治疗时及

用药的 24 h 内应严密监护患者生命体征。测定治疗前后患者头颅部位的 MRI、MRA 及 NIHSS 评分检查。治疗前后采集患者空腹 5 mL 肘静脉血,在已充有 EDTA 抗凝采血管中装入血样,按照 3000 r/min 转速离心,10 min 后取上层血清于 EP 管,在 -20°C 冰箱中保存备用。

1.3 检测方法

对患者头部行 CT、MRI 检测,包括 DWI 等,来判断脑部血管的灌注及闭塞血管的再通情况。采用双抗体夹心法检测血清脑钠肽及 Hcy 水平,血清脑钠肽及 Hcy 的测定均选择由上海歌凡生物科技有限公司生产的抗体进行测定,严格按照要求进行操作。

1.4 疗效评价

按照指标将疗效划分为显效、有效和无效这三个等级。显效:溶栓的 24 h 后,患者 NIHSS 评分减少 >5 分,神经功能障碍明显缓解,常规工作及生活可以正常进行,影像学检查显示脑组织的血流恢复 $\geq 10\text{ mL}$;有效:24 h 后,患者 NIHSS 评分减少 >3 分,神经功能障碍基本缓解恢复,工作及生活可独立完成但较为迟缓,影像学检查显示脑组织的血流恢复 $\geq 10\text{ mL}$;无效:溶栓治疗 24 h 后,患者 NIHSS 评分减少 <3 分,神经功能障碍仍明显存在,影像学检查显示脑组织的血流恢复 $<10\text{ mL}$ 。治疗总有效率=(显效数+有效数)/总数 $\times 100\%$ 。

1.5 统计学方法

选用统计学软件 SPSS 19.0 对所得数据处理与分析,按照正态分布的数据使用 " $\bar{x}\pm s$ " 进行分析,数据差异的比较采取 t 检验,率(%)对计数资料进行描绘,检验方式选择卡方检验, $P<0.05$ 时认为差异具有统计学意义。

2 结果

2.1 两组临床疗效比较

实验组总有效率为 95.8%,显著高于对照组 73.7%,差异具有统计学意义($P<0.05$)。见表 1。

表 1 两组患者临床疗效比较【例(%)】

Table 1 Comparison of the clinical efficacy between the two groups [n(%)]

Groups	Cases	Excellent	Effective	Invalid	Total effective rate
Control group	19	5(26.3)	9(47.4)	5(26.3)	14(73.7)
Experimental group	24	13(54.2)	10(41.7)	1(4.2)	23(95.8)*

Note: Compared with the control group, * $P<0.05$.

2.2 两组血管再通率及 NIHSS 评分比较

与治疗前比较,两组治疗后 NIHSS 评分均降低。与对照组

比较,实验组血管总再通率较高,NIHSS 评分较低,差异均具有统计学意义($P<0.05$)。见表 2。

表 2 两组患者治疗后血管再通率及 NIHSS 评分比较($\bar{x}\pm s$)

Table 2 Comparison of the vascular patency rate and NIHSS score before and after treatment between the two groups($\bar{x}\pm s$)

Groups	Cases	Obstructive vascular patency rate				NIHSS score	
		Completely re-pass	Partial re-pass	Occlusion	Total re-pass rate	Before treatment	After treatment
Control group	19	4(21.1)	11(57.9)	4(21.1)	15(78.9)	16.9 $\pm$ 2.2	12.9 $\pm$ 1.7*
Experimental group	24	13(54.2)	10(41.7)	1(4.2)	23(95.8) [#]	16.4 $\pm$ 2.3	6.8 $\pm$ 1.1**

Note: * $P<0.05$, compared with this group before treatment; [#] $P<0.05$, compared with the control group after treatment.

2.3 两组患者治疗前后血清脑钠肽及 Hcy 水平比较

治疗后,两组血清脑钠肽及 Hcy 水平均较治疗前明显降低

($P<0.05$); 与对照组相比较, 实验组血清脑钠肽及 Hcy 水平较低, 差异具有统计学意义($P<0.05$)。见表 3。

表 3 两组患者治疗前后血清脑钠肽及 Hcy 水平比较($\bar{x} \pm s$)

Table 3 Comparison of the serum levels of brain natriuretic peptide and Hcy before and after treatment between the two groups($\bar{x} \pm s$)

Groups	Cases	Brain natriuretic peptide(ng/L)		Hcy($\mu\text{mol/L}$)	
		Before treatment	After treatment	Before treatment	After treatment
Control group	19	212.3 $\pm$ 22.4	191.6 $\pm$ 20.2*	27.8 $\pm$ 2.9	22.5 $\pm$ 2.6*
Experimental group	24	215.7 $\pm$ 22.8	162.3 $\pm$ 18.6*#	26.6 $\pm$ 2.7	10.3 $\pm$ 1.1*#

Note: * $P<0.05$, compared with this group before treatment; # $P<0.05$, compared with the control group after treatment.

3 讨论

急性脑梗死是临床脑卒中的常见类型,是指患者脑内的动脉发生闭塞后引起的区域性缺血或者区域梗死,因缺血及缺氧而导致周围部位神经元及胶质细胞的损伤,引起神经功能损害^[6,7]。急性脑梗死患者出现梗死的部位多为大脑中动脉,此区域最易形成血栓栓塞,在有效时间窗即 6 小时内进行治疗能够有效恢复脑组织的缺血状态,增加再灌注,改善梗死面积及程度^[8]。动脉介入治疗是指借助 Seldinger 技术及 DSA 图像监视跟踪,输送微导管进入脑血管后,在动脉内梗死区域选择性进行溶栓治疗^[9]。有研究显示^[10]动脉介入溶栓治疗患者的再通率约为 60%。因此,尽早行溶栓治疗能够及时促进组织坏死区域的血管进行再通,减少并发症发生,尽快使脑细胞功能恢复,明显降低患者致残率^[11]。本研究结果显示动脉介入溶栓治疗能够有效使阻塞血管再通,增加再灌注,促使患者已损伤的脑细胞组织进行修复^[12]。

血清脑钠肽(BNP)由心肌细胞合成,这种血管活性多肽存在于心室及脑组织中,是常见的内分泌因子,能够扩张血管^[13,14]。在急性脑梗死患者中,BNP 的含量水平明显升高,通过测定 BNP 的水平能够反映患者的梗死范围及病情的严重程度^[15,16]。同型半胱氨酸(Hcy)在人体内是一种中间代谢产物,在体内经含硫氨基酸经转甲基而生成,在急性脑梗死患者血清中含量增加,通过对 Hcy 水平的测定可以判断急性脑梗死的严重程度^[17-19]。本研究中,两组患者治疗后血清脑钠肽、Hcy 水平及 NIHSS 评分值均降低,与对照组比较,实验组血清脑钠肽、Hcy 水平及 NIHSS 评分值较低,提示溶栓治疗后患者血管闭塞情况得到明显改善,其周围受到损伤的神经功能障碍程度也得到缓解,同时血清因子脑钠肽及 Hcy 水平明显降低,说明患者脑组织细胞的损伤程度得到有效改善与缓解^[20]。

综上所述,动脉介入溶栓术治疗急性脑梗死患者能够有效提高血管再通率、NIHSS 评分及临床疗效,推测其与降低患者血清脑钠肽及 Hcy 水平相关联。

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